



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,053	09/16/2003	Cary R. Bybee	200208149	5477

22879 7590 07/22/2005

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

DICHT, RACHEL S

ART UNIT	PAPER NUMBER
----------	--------------

2853

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

HA

Office Action Summary

Application No.

10/665,053

Applicant(s)

BYBEE ET AL.

Examiner

Rachel Dicht

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) 17-22, 31, 32, 34-39, 53, 54 and 67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 11, 13, 16, 23-26, 44, 47-49, 55-65 and 68 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 10, 12, 29, 30, 45, 46 and 50-52 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/16/2003.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 17-22, 31, 32m 34-39, 53, 54, and 67 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 19, 2005.

Claim Objections

2. Claims 8, 14, 15, and 23 are objected to because of the following informalities:

In regard to:

Claim 8:

Refers back to wrong independent claim.

Claims 14 and 15:

Withdrawn. Same as claims 31 and 32.

Claim 23:

Dependant on a withdrawn claim (Claim 18).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 3, 6, 7, 8, 9, 16, 23, 24, 25, 26, 44, 47, 48, 55, 56, 62, 63, 64, 65 and 68 are rejected under 35 U.S.C. 102(b) as being anticipated by Dunn et al. (US Pat. No. 5,153,612).

In regard to:

Claim 1:

Dunn et al. teaches an ink delivery regulation apparatus, comprising a support (52, Fig. 2) configured to be positioned within an ink chamber (22, Fig. 2), a resilient deflection member (24, Fig. 2) coupled to said support, said resilient deflection member being configured to resiliently deflect from a generally concave shape (24, Fig. 2) to a generally convex shape (dashed lines in Fig. 4) in response to a change in said negative pressure (refer to column 5 lines 11-16).

Claim 2:

Dunn et al. teaches an ink delivery regulation apparatus wherein said support is configured to sealingly engage said ink chamber (50, Fig. 4) (refer to column 4 lines 46-47).

Claim 3:

Dunn et al. teaches an ink delivery regulation apparatus wherein said resilient deflection member (24, Fig. 2) is configured to contain an ink in said ink chamber (22, Fig. 2) (refer to column 4 lines 25-26).

Claim 6 and 7:

Dunn et al. teaches an ink delivery regulation apparatus wherein said deflection member (24, Fig. 2) comprises an elastomeric material and where said elastomeric material comprises EPDM/Butyl (refer to column 4 lines 62-64).

Claim 8:

Dunn et al. teaches an ink delivery regulation apparatus wherein the said resilient deflection member (24, Fig. 2) is of substantially uniform thickness (Fig. 2 and 4) (refer to column 4 lines 65-68).

Claim 9:

Dunn et al. teaches an ink delivery apparatus comprising an ink chamber (22, Fig. 2), and a pressure regulation member (refer to column 1 lines 23-27) having a support (52, Fig. 2) configured to be positioned within said ink chamber and a resilient deflection member (24, Fig. 2) coupled to said support, said resilient deflection member being configured to resiliently deflect from a generally

Art Unit: 2853

concave shape (24, Fig. 2) to a generally convex shape (dashed lines in Fig. 4) in response to a change in said negative pressure (refer to column 5 lines 11-16).

Claim 16:

Dunn et al. teaches an ink delivery apparatus further comprising a fitment (28, Fig. 2) associated with said ink chamber.

Claim 23:

Dunn et al. teaches an ink delivery apparatus wherein the fitment (28, Fig. 2) is coupled with a print head (26, Fig. 2).

Claim 24:

Dunn et al. teaches an ink delivery apparatus further comprising a bubble generator associated with said chamber (70, Fig. 2) (refer to column 6 lines 17-19).

Claim 25:

Dunn et al. teaches an ink delivery apparatus wherein said bubble generator is configured to limit said negative pressure within said chamber to a pressure equivalent to about 6" of water column during an operational period of said apparatus (refer to column 5 line 49 and column 6 line 13).

Claim 26:

Dunn et al. teaches an ink delivery apparatus wherein said bubble generator is disposed in said fitment (70 and 26, Fig. 2).

Claim 44:

Dunn et al. teaches a printing device comprising an ink chamber (22, Fig. 2), a pressure regulation member having a support (52, Fig. 2) positioned within said ink chamber, a resilient deflection member (24, Fig. 2) coupled to said support, said resilient deflection member being configured to resiliently deflect from a generally concave shape (24, Fig. 2) to a generally convex shape (dashed lines in Fig. 4) in response to changing negative pressure (refer to column 5 lines 11-16), a fitment (28, Fig. 2) coupled to said ink chamber, a bubble generator (70, Fig. 2) in communication with said ink chamber, and a print head coupled to said ink chamber (26, Fig. 2).

Claim 47 and 48:

This claim is rejected on the basis set forth for claim 25 as discussed above.

Claim 55:

Dunn et al. teaches a method of delivering ink comprising: providing an ink chamber (22, Fig. 2) containing an ink and wherein is disposed a deflection member (24, Fig. 2), establishing a negative pressure in said chamber (refer to

Art Unit: 2853

column 5 lines 28-38), supplying ink to print head (refer to column 5 lines (20-27), and regulating a level of said negative pressure within a pre-determined range during said supplying of said ink by resiliently deflecting said deflection member in response changes in said negative pressure (refer to column 5 lines 11-16).

Claim 56:

Dunn et al. teaches a method wherein said regulating step further comprises resilient deflecting said deflection member (24, Fig. 2) between a generally concave shape (24, Fig. 2) to a generally convex shape (dashed lines in Fig. 4).

Claim 62:

Dunn et al. teaches a method wherein said step of establishing said negative pressure comprises applying a positive pressure to said deflection member during a filling step, and removing said positive pressure at an end of said filling step (refer to column 5 lines 30-38).

Claim 63

Dunn et al. teaches a method wherein said step of establishing said negative pressure comprises removing a small amount of said ink (refer to column 5 lines 30-38).

Claim 64:

Dunn et al. teaches a method of delivering ink further comprising moving said ink chamber (60, Fig. 2) with said print head (26, Fig. 2).

Claim 65:

Dunn et al. teaches an ink delivery system comprising: containing means for containing a supply of ink for a print head (26, Fig. 2), means for establishing a negative pressure in said containing means (refer to column 5 lines 30-38), and means for maintaining said negative pressure within a predetermined range comprising flexible means (24, Fig. 2) for flexing in response to changes in said negative pressure (refer to column 5 lines 11-16).

Claim 68:

Dunn et al. teaches a system further comprising means for providing positive pressure in said containing means (bubble generator 70, Fig. 2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2853

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11, 13, 49, 57, 58, 59, 60, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (US Pat. No. 5,153,612) in view of Scheffelin et al. (US Pat. No. 5,745,137).

In regard to:

Claim 11:

The device of Dunn et al. DIFFERS from claim 11 in that it fails to teach an apparatus further comprising a plurality of ink chambers.

However, Scheffelin et al. teaches an apparatus further comprising a plurality of ink chambers (250, Fig. 9)(refer to column 7 lines 40-42).

Claim 13:

The device of Dunn et al. DIFFERS from claim 12 in that it fails to teach an apparatus wherein said plurality of ink chambers is configured to contain a plurality of differently colored inks.

However, Scheffelin et al. teaches an apparatus wherein said plurality of ink chambers is configured to contain a plurality of differently colored inks (refer to column 7 lines 58-60).

Claim 49:

The device of Dunn et al. DIFFERS from claim 49 in that it fails to teach a printing device comprising a plurality of chambers.

However, Scheffelin et al. teaches a printing device comprising a plurality of chambers (250, Fig. 9) (refer to column 7 lines 41-43).

Claim 57:

The device of Dunn et al. DIFFERS from claim 57 in that it fails to teach a method of delivering ink further comprising providing a plurality of said chambers wherein are disposed a plurality of said deflection member in each of said chambers.

However, Scheffelin et al. teaches a method of delivering ink further comprising providing a plurality of said chambers (250, Fig. 9) wherein are disposed a plurality of said deflection member (22 and 24, fig. 1) in each of said chambers (refer to column 4 lines 42-45).

Claim 58:

The device of Dunn et al. DIFFERS from claim 58 in that it fails to teach a method of delivering ink wherein each of said plurality of said chambers is configured to contain a differently colored ink.

However, Scheffelin et al. teaches a method of delivering ink wherein each of said plurality of said chambers (250, Fig. 9) is configured to contain a differently colored ink (refer to column 7 lines 58-60).

Claim 59:

The device of Dunn et al. DIFFERS from claim 59 in that it fails to teach a method of delivering ink further comprising an internal pressure source.

However, Scheffelin et al. teaches a method of delivering ink further comprising an internal pressure source (30, Fig. 1) (refer to column 4 lines 56-60).

Claim 60:

Dunn et al. teaches a method of delivering ink wherein said internal pressure source comprises a bubble generator (70, Fig. 2) (refer to column 6 lines 17-19).

Claim 61:

However, Dunn et al. further teaches a method of delivering ink wherein said bubble generator is tuned to pressure equivalent of about 6" of water (refer to column 5 line 49 and column 6 lines 9-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Dunn et al. to include a plurality of ink chambers as taught by Scheffelin et al. for the purpose of faster printing.

7. Claims 27, 28, 33, 40, 41, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheffelin et al. (US Pat. No. 5,745,137) in view of Dunn et al. (US Pat. No. 5,153,612).

In regard to:

Claim 27:

Scheffelin et al. teaches an ink delivery apparatus comprising a plurality of ink chambers (250, Fig. 9) (refer to column 7 lines 40-42), an integral pressure regulation assembly having a plurality of pressure regulation members (30, 40, and 50, Fig. 1) corresponding to said plurality of ink chambers²³⁸, Fig. 9) wherein each pressure regulation member is configured to be positioned within each of said plurality of ink chambers and includes a support (20, Fig. 1) (refer to column 4 lines 41-44 and line 56-60).

Incorporating all arguments of claim 27 it is noted that Scheffelin et al. fails to teach a resilient deflection member coupled to said support, said resilient

Art Unit: 2853

deflection member being configured to resiliently deflect from a generally concave shape to a generally convex shape in response to a change in negative pressure.

However, Dunn et al. teaches a resilient deflection member (24, Fig. 2) coupled to said support (52, Fig. 2), said resilient deflection member being configured to resiliently deflect from a generally concave shape (24, Fig. 2) to a generally convex shape (dashed lines in Fig. 4) in response to a change in negative pressure (refer to column 5 lines 11-16).

Claim 28:

Scheffelin et al. teaches an ink delivery apparatus wherein said integral pressure regulation assembly is integrally formed (refer to column 4 lines 41-44 and line 56-60).

Claim 33:

The device of Scheffelin et al. DIFFERS from claim 33 in that it fails to teach an ink delivery apparatus further comprising a fitment associated with said ink chamber.

However, Dunn et al. further teaches an ink delivery apparatus further comprising a fitment (28, Fig. 2) associated with said ink chamber (22, Fig. 2).

Claim 40:

The device of Scheffelin et al. DIFFERS from claim 40 in that it fails to teach an ink delivery apparatus wherein said fitment is configured to couple with a print head.

However, Dunn et al. further teaches an ink delivery apparatus wherein said fitment (28, Fig. 2) is configured to couple with a print head (26, Fig. 2).

Claim 41:

The device of Scheffelin et al. DIFFERS from claim 41 in that it fails to teach an ink delivery apparatus further comprising a bubble generator associated with said chamber.

However, Dunn et al. further teaches an ink delivery apparatus further comprising a bubble generator (70, Fig. 2) associated with said chamber (22, Fig. 2).

Claim 42:

The device of Scheffelin et al. DIFFERS from claim 42 in that it fails to teach an ink delivery apparatus wherein said bubble generator is configured to

limit said negative pressure within said chamber to a pressure equivalent to about 6" of water column during an operational period of said apparatus.

However, Dunn et al. further teaches an ink delivery apparatus wherein said bubble generator is configured to limit said negative pressure within said chamber to a pressure equivalent to about 6" of water column during an operational period of said apparatus (refer to column 5 line 49 and column 6 lines 9-13 and 40-43).

Claim 43:

The device of Scheffelin et al. DIFFERS from claim 42 in that it fails to teach an ink delivery apparatus wherein said bubble generator is disposed in said fitment.

However, Dunn et al. further teaches an ink delivery apparatus wherein said bubble generator (70, Fig. 2) is disposed in said fitment (28, Fig. 2).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Scheffelin et al. to include a fitment associated with said ink chamber as taught by Dunn et al. for the purpose of connecting the ink chamber with the print head.

8. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (US Pat. No. 5,153,612) in view of Clark et al. (US Pat. No. 5,734,401).

The device of Dunn et al. DIFFERS from claim 66 in that it fails to teach an ink delivery system further comprising means for monitoring said negative pressure.

However, Clark et al. teaches an ink delivery system further comprising means (30, Fig. 3) for monitoring said negative pressure (refer to column 8 lines 51-53)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Dunn et al. to include means for monitoring the negative pressure of the system as taught by Clark et al. for the purpose of extending the life of the print head by preventing "dry" firing of the ink jets.

Allowable Subject Matter

9. Claims 4, 5, 10, 12, 29, 30, 45, 46, and 50-52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2853

10. The following is a statement of reasons for the indication of allowable subject matter: The primary reason for the allowance of claims 4, 5, 10, 12, 29, 30, 45, 46 and 50-52 is the inclusion of the limitation of:

Claim 4:

The apparatus wherein the resilient deflection member comprises first, second, and third pressure tuned panel portions.

Claim 5:

Dependant on claim 4.

Claim 10:

The apparatus comprising a plurality of pressure regulation members.

Claim 12:

The apparatus further comprising a plurality of pressure regulation members associated with each of said chambers.

Claim 29:

The apparatus wherein said integral pressure regulation assembly is configured to be integrally coupled to a plurality of said ink chambers.

Claim 30:

Dependant on claim 29.

Claim 45:

The device wherein said resilient deflection member comprises first, second, and third pressure tuned panel portions.

Claim 46:

Dependant on claim 45.

Claim 50:

The device wherein said plurality of chambers comprises three chambers.

Claims 51 and 52:

Dependant on claim 50.

It is these limitations found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel Dicht whose telephone number is 571-272-8544. The examiner can normally be reached on 7:00 am - 3:30 pm Monday through Friday.

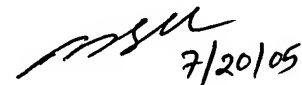
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RSD



July 11, 2005


7/20/05
MANISH S. SHAH
PRIMARY EXAMINER